

## REMARKS

Reconsideration of the application is respectfully requested for the following reasons:

1. Amendments to Abstract

The abstract has been shortened to less than 150 words, as required in item 1 on page 2 of the Official Action.

2. Rejection of Claims 1, 3, and 15 Under 35 USC §112, 2nd Paragraph

This rejection has been addressed by:

- a. amending claim 1 to clarify that the “at least one end system” of line 8 in fact refers to the “at least one end system of line 4;
- b. amending claim 1 to recite that the service request packet is forwarded to “an available one of the at least one end system” rather than to –the at least one available end system–;
- c. amending claims 3 and 15 to clarify that the pattern matching rules match packets to an advertised flow; and
- d. amending claim 3 by changing “don’t match” to –do not match– (contrary to the Official Action, claim 15 does not recite “don’t match”).

Having thus overcome each of the grounds for rejection under 35 USC §112, 2<sup>nd</sup> Paragraph, and having corrected various additional formal errors, withdrawal of the rejection under 35 USC §112, 2<sup>nd</sup> Paragraph is respectfully requested.

3. Rejection of Claims 1, 2, 4-9, 13, 14, and 16 Under 35 USC §103(a) in view of U.S. Patent Nos. 6,622,157 (Heddaya) and 5,854,897 (Radziewicz)

This rejection is respectfully traversed on the grounds that neither the Heddaya patent nor the Radziewicz patent, whether considered together or in any reasonable combination, discloses or suggests the following features of the claimed invention:

- a system for managing broadband IP services in a layer two broadcast network;

- **wherein intermediate systems always forward packets based on the flow advertised by an end system**, the end and intermediate systems being in addition to the control system that handles registration, responds to requests looking for the server list, runs as an Assigned Numbers Authority server, and runs as a management agent.

The purpose of the claimed invention is essentially to avoid use of the address resolution protocol (ARP) that sends out a broadcast to all end systems to look for a layer two address of an IP address. This is accomplished by having an **intermediate** system listen to the service information advertised by the end system servers, and giving the end system servers the responsibility for advertising **flow routing information** after a service request has been accepted. The flow routing information will typically specify itself as the destination (using the layer two Ethernet MAC address) for the traffic flow that it is serving, and can be stored in the flow table in the intermediate system, in addition to the server table, thereby eliminating the need for an ARP broadcast.

Neither of the two references applied by the Examiner even remotely concerns either the problem addressed by the invention (layer 2 address resolution), or the solution (use of intermediate servers in the claimed manner). In fact, neither even concerns a layer 2 broadcast network, layer 2 being a specific one of the seven ISO software layers, as indicated by the following explanation taken from a website having the Universal Resource Locator (URL) [https://secure.linuxports.com/howto/intro\\_to\\_networking/c4412.htm](https://secure.linuxports.com/howto/intro_to_networking/c4412.htm):

#### Layer 2 - Data Link Layer

The Data Link layer is a firmware layer of the network interface card. The Data Link layer puts the datagrams into packets (frames of bits: 1s & 0s) for transmission, and assembles received packets into datagrams. The Data Link layer works at the bit level, and adds start / stop flags and bit error checking (CRC or parity) to the packet frame. Error checking is at the bit level only: packets with errors are discarded and a request for re-transmission is sent out. The Data Link layer is primarily concerned with bit sequence.

Instead of layer 2, the Heddaya patent concerns layer 1, the physical layer, and in particular with an arrangement of physical layer nodes for receiving and forwarding packets. The nodes of Heddaya do not correspond to the layer 2 end and intermediate systems of the claimed invention, and Heddaya does not even remotely suggest the claimed flow advertisements sent by end systems to intermediate systems (and relayed by the control system).

The Radziewicz patent also does not concern layer 2 flow advertisements, but rather concerns a marketing system that allows a client station accessing a computer network through a Network Service Provider (NSP) to receive advertisements (which have nothing to do with the flow advertisements of the claimed invention) whenever the connection path between a client station and the NSP is idle. This is accomplished, according to Radziewicz, through use of a browser client program including a display window executing on the network terminating device for allowing the network terminating device to communicate with other devices on the communications network, the NSP providing the network terminating device access to the communications network, and the network server program operating on the NSP to handle communications with the network terminating device and other devices on the communications network.

While the Radziewicz patent does concern advertisements, traffic, and announcements, Radziewicz is concerned solely with the connection path between a network terminating device and the NSP, the network terminating device having a browser client program, which has is not affected by, and does not affect, layer 2 (data link layer) communications. Anyone in the field of network communications will immediately understand that a marketing system between a terminating device and an NSP is totally different from a system for managing broadband IP services in a layer 2 broadcast network.

Because neither the Heddaya patent nor the Radziewicz patent is concerned with layer 2 communications of the type claimed, much less a specific protocol involving advertisement of flow by end systems for use by intermediate systems, it is respectfully submitted that the rejection

of claims 1, 2, 4-9, 13, 14, and 16 is improper and withdrawal of the rejection is respectfully requested.

4. Rejection of Claim 10 Under 35 USC §103(a) in view of U.S. Patent Nos. 6,622,157 (Heddaya), 5,854,897 (Radziewicz), and 6,052,718 (Gifford)

This rejection is respectfully traversed on the grounds that neither the Gifford patent, like the Heddaya and Radziewicz patents, fails to disclose or suggest a system for managing broadband IP services in a layer two broadcast network, in which intermediate systems always forward packets based on the flow advertised by an end system, as claimed and discussed above. Instead, the Gifford patent concerns replica routing that automatically directs client computers to server replicas. The replica routing of Gifford does not involve layer two, flow advertisements, or any other aspect of the claimed invention, and therefore the Gifford patent could not have suggested modification of the systems disclosed in the Heddaya and Radziewicz patents to obtain the claimed invention.

5. Rejection of Claim 11 Under 35 USC §103(a) in view of U.S. Patent Nos. 6,622,157 (Heddaya), 5,854,897 (Radziewicz), and 6,708,218 (Ellington)

This rejection is respectfully traversed on the grounds that neither the Ellington patent, like the Heddaya and Radziewicz patents, fails to disclose or suggest a system for managing broadband IP services in a layer two broadcast network, in which intermediate systems always forward packets based on the flow advertised by an end system, as claimed.

While the Ellington patent does at least concern a data link control layer, which is close to the data link layer, the Ellington patent is directed to the network interface card and a hardware assist component that processes each data frame with a security extension on a separate processing queue. There is no suggestion of the flow advertisements of the claimed invention, or any other aspects of the claimed layer 2 broadcast network. Therefore, the Ellington patent could not have suggested modification of the systems of Heddaya and/or Radziewicz to obtain the claimed invention.

5. Rejection of Claim 12 Under 35 USC §103(a) in view of U.S. Patent Nos. 6,622,157 (Heddaya), 5,854,897 (Radziewicz), and 6,661,799 (Molitor)

This rejection is respectfully traversed on the grounds that neither the Molitor patent, like the Heddaya and Radziewicz patents, fails to disclose or suggest a system for managing broadband IP services in a layer two broadcast network, in which intermediate systems always forward packets based on the flow advertised by an end system, as claimed.

While the Molitor patent is at least directed to address managing and address translation, it involves a network address translation device for facilitating message packet communication between a first application having an internal address valid in an internal address realm and one or more applications in an external address realm, which clearly has nothing to do with the layer 2 broadcast network systems of the claimed invention. As a result, it is respectfully submitted that the Molitor patent could not possibly have suggested modification of the systems disclosed in the Heddaya and Radziewicz patents to obtain the claimed invention.

Having thus overcome each of the rejections made in the Official Action, withdrawal of the rejections and expedited passage of the application to issue is requested.

Respectfully submitted,

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